

CubeSat Storage and Communications Card (C-SaCC)

Completed Technology Project (2017 - 2018)



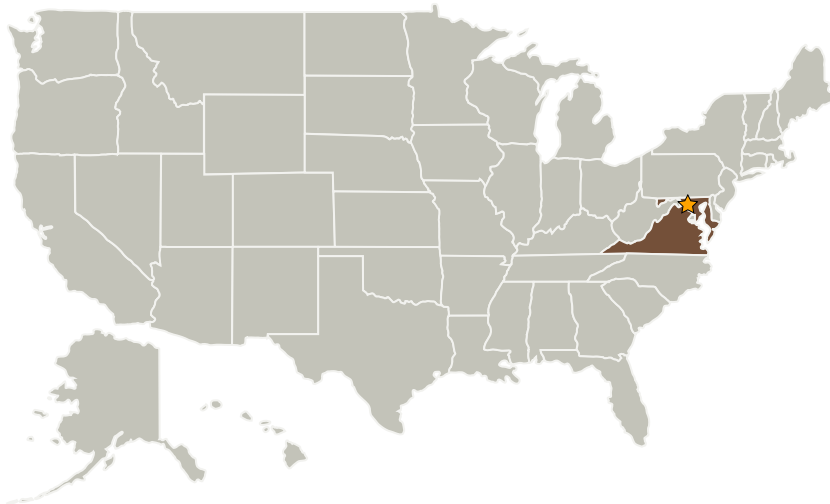
Project Introduction

Science and housekeeping data generated on a CubeSat can be collected for hours or days between opportunities to downlink, but each downlink window provides only a few minutes of time to transfer this data to the ground. Most transceivers which handle this task provide little buffering of this data, and when the C&DH processor has a slower serial link it limits the effective downlink rate of the transceiver. An integrated onboard mass storage and transceiver interface card would mitigate this limitation and allow downlink rates at the maximum rate of the transceiver while allowing the C&DH to forward downlink data over a slower serial interface.

Anticipated Benefits

A separate buffering solution such as the C-SaCC would facilitate the use of a greater variety of CubeSat radios by mitigating a potentially slower serial link from the C&DH. It would allow these slower serial interfaces to forward downlink data over time prior to the downlink pass. This would allow the downlink radio to operate at the full bit rate. This would provide greater flexibility in the selection of C&DH processors and transceivers. This would allow for optimizations that wouldn't be possible with commercially available C&DH and radio products.

Primary U.S. Work Locations and Key Partners



C-SaCC Logo

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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations	
Maryland	Virginia

Images

**C-SaCC Logo**

C-SaCC Logo

(https://techport.nasa.gov/image/28285)

Organizational Responsibility

Responsible Mission Directorate:

Mission Support Directorate (MSD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Center Independent Research & Development: GSFC IRAD

Project Management

Program Manager:

Peter M Hughes

Project Managers:

Jacqueline J Le Moigne-stewart

Michael A Johnson

Daniel A Mullinix

Principal Investigator:

Michael W Matthews

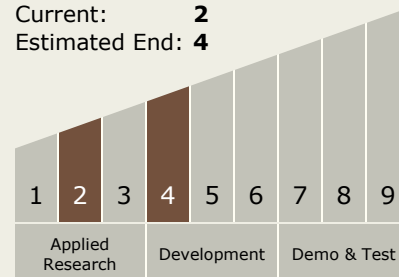
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Technology Maturity (TRL)

Start: 2
Current: 2
Estimated End: 4



Technology Areas

Primary:

- TX02 Flight Computing and Avionics
 - └ TX02.2 Avionics Systems and Subsystems
 - └ TX02.2.5 High Speed Onboard Interconnects and Networks

Target Destination

Earth